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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/608,743
Filing Date: June 30, 2000
Appellant(s): HEIN ET AL.

William D. Davis, Reg. No. 38,428
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 28 November 2007 appealing from the Office action mailed 20 September 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,274,702	ROSCH et al.	12-1993
4,151,482	ROBE	4-1979
4,284,958	PRYOR et al.	8-1981

Sedra et al., Microelectronic Circuits, Fourth Edition Oxford University Press 23-24 (1998).

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. **Claims 1, 3, 5-7, 9, 10, 12, 15, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosch et al. (US Patent 5,274,702) (herein *Rosch*) in view of Robe (US Patent 4,151,482) (herein *Robe*). Inherent properties of *Rosch* are detailed in Sedra et al., Microelectronic Circuits, Fourth Edition 23 (1998) (herein *Sedra*) (even though *Sedra* was not cited in the Office Action from which appellant appealed, *Sedra* is cited in this answer to support the Official Notice factual finding made**

by examiner apropos the ability to model a voltage amplifier as any other type of amplifier, which finding is challenged by the appellant in its Brief. Final Rejection at 2, 5 (20 September 2006); Appeal Brief at 6 (28 November 2007)).

Though the rejections appearing *infra* are not identical in form to the rejection found in the Final Rejection from which appellant appealed, the rejections in the Final Rejection incorporated many previous rejections so the following rejections were written to encompass and detail each of those rejections without stating any new grounds for rejecting any limitation on appeal.

Claim 1 is limited to a method that (1) receives an outgoing audio signal, (2) couples the audio signal to a subscriber line through a plurality of transistors coupled in a common base configuration and (3) receives linefeed driver control signals for controlling battery feed to the subscriber line, wherein (4) the audio signal and linefeed driver control signals are received as currents on the same signal lines. *Rosch* discloses a wideband telephone line interface circuit, or subscriber line interface circuit (SLIC). *Rosch* at Abstract, col. 1 ll. 5-10. The SLIC receives an outgoing signal Rx from the central office (CO) via receive line 22. *Id.* at col. 5 ll. 15-21, col. 9 ll. 63-64, figs.1 & 3. Signal Rx can be a general voiceband signal. *Id.* at col. 5 ll. 51-60. The signal Rx is coupled to the subscriber line 36, or 14, via amplifier circuits 104, 106, 132 and 134. *Id.* at fig.3. Since the SLIC receives from the CO and transmits to the subscriber line signal Rx as a voiceband signal, signal Rx is a received outgoing audio signal as claimed.

Since signal Rx is coupled to subscriber line 36 through operational amplifiers, the *Rosch* SLIC likely includes a plurality of transistors, but *Rosch* is silent as to the construction of the amplifier circuits. *Id.* at col. 10 ll. 18-19, fig.3. Since *Rosch* is silent regarding the amplifier's

construction, *Rosch* fails to disclose a plurality of transistors coupled in a common base configuration. This deficiency will be treated *infra*.

Rosch discloses four controlled current sources 142, 144, 148 and 150. *Id.* at fig.3. Three monitored signals—IL, ICM, VCM—provide feedback controls to digital control circuit 152 that adjusts the current sources. *Id.* at col. 10 ll. 54-68, col. 11 ll. 1-16. Based on the adjustment, the current sources determine the battery feed voltage at the output of buffer amplifiers 132 and 134. *Id.* at col. 10, ll. 49-53, col. 11 ll. 24-58. Since current sources 142, 144, 148 and 150 create currents at the input of amplifiers 132 and 134 to determine the battery feed voltage output to the subscriber line 36, the SLIC of *Rosch* receives a linefeed driver control signal for controlling battery feed to the subscriber line as claimed. Since signal Rx and the outputs of current sources 142, 144, 148 and 150 are coupled to the subscriber line 36 through amplifiers 132 and 134, both the current source outputs and signal Rx are received on the same signal lines as claimed, to wit, the signal lines feeding the non-inverting inputs of amplifiers 132 and 134. Though the input of interest at the non-inverting input of amplifier 132 is voltage, any amplifier can be modeled as any of the four types of amplifiers: voltage, current, transconductance and transresistance. *Sedra* at 23-24. If one models voltage amplifier 132 as a current amplifier, the input voltage at the non-inverting input of amplifier 132 will be mathematically converted into an input current using the relationship $i_i = v_i / R_i$, where i_i is the input current, v_i is the input voltage and R_i is the input resistance. *Id.* Accordingly, the presence of a voltage at the non-inverting inputs of amplifiers 132 and 134 is evidence of an input current. Since voltages evince currents and since the input voltage at the non-inverting inputs of amplifiers 132 and 134 are determined by the outputs of current generators and signal Rx, the

current generator outputs and signal Rx are received at the inputs of amplifiers 132 and 134 as currents as claimed.

Focus now on the deficiencies identified *supra* apropos the second method step of this claim. Since *Rosch* is silent regarding the structure of amplifiers 132 and 134, one of ordinary skill in the art would have been inherently motivated to find a teaching of how to construct the operational amplifiers, or to simply use a known operational amplifier. One exemplary operational amplifier is taught by *Robe*. *Robe* teaches a folded-cascade amplifier with a differential construction that corresponds to the amplifiers 132 and 134 of Rosch. *Rosch* at Abstract, col. 2 ll. 32-51. Specifically, two inputs, IN and IN_BAR, are provided as well as a single-ended output, OUT. *Id.* The output of the amplifier is provided in part by a common-base stage comprising a plurality of transistors Q3 and Q4. *Id.* at col. 4 ll. 21-25, figs.1-4. Since the *Robe* amplifier comprises common-base transistors Q3 and Q4, the *Robe* amplifier comprises a plurality of transistors coupled in a common base configuration as claimed. Embodying the *Rosch* amplifiers 132 and 134 with the *Robe* amplifier would result in coupling Rx through the common base transistors Q3 and Q4. So the combination of *Rosch* and *Robe* teaches coupling the audio signal to a subscriber line through a plurality of transistors coupled in a common base configuration as claimed. One of ordinary skill in the art would have found the combination of *Rosch* and *Robe* obvious at the time of the invention since *Rosch* requires one of ordinary skill in the art to either choose a voltage amplifier known in the prior art or design a new amplifier and *Robe* teaches a voltage amplifier. Therefore, *Rosch* in view of *Robe* makes obvious all limitations of the claim.

Claim 3 is limited to the method of claim 1. The transistors Q3 and Q4, as taught by *Robe*, are bipolar junction transistors. *Robe* at col. 3 l. 2, col. 4 l. 12. Therefore, *Rosch* in view of *Robe* makes obvious all limitations of the claim.

Claim 5 is limited to a method comprising essentially the same steps as claim 1, as covered by *Rosch* in view of *Robe*, and is rejected for the same reasons. Specifically, receiving linefeed driver control signals and outgoing audio signals as currents on a same plurality of signal lines is substantially identical language as steps a) and c) from claim 1. The instant limitation of a plurality of signal lines was not discussed in claim 1 *supra*, however, *Rosch* discloses two amplifiers 132 and 134 with two separate input lines that receive separate battery feed control signals and separate Rx signals. *Rosch* at fig.3. Providing the outgoing audio signals to a subscriber line through a common base isolation stage is slightly broader in scope than b) of claim 1 since the instant providing step does not require a plurality of transistors, otherwise the limitations are identical. Therefore, *Rosch* in view of *Robe* makes obvious all limitations of the claim.

Claim 6 is limited to the method of claim 5. When the currents provided by sources 142, 144, 148 and 150 are coupled to the subscriber loop at connection 36, battery feed to a tip node and a ring node is provided as claimed. *Rosch.* at col. 10, ll. 49-53, col. 11 ll. 24-58. Therefore *Rosch* in view of *Robe* makes obvious all limitations of the claim.

Claim 7 is limited to the method of claim 5. The transistors Q3 and Q4, as taught by *Robe*, are bipolar junction transistors. *Robe* at col. 3 l. 2, col. 4 l. 12. Therefore, *Rosch* in view of *Robe* makes obvious all limitations of the claim.

Claim 9 is limited to a subscriber line interface circuit apparatus. *Rosch* discloses a telephone line interface circuit that comprises a line drive circuit 10 that corresponds to the first circuit as claimed. *Rosch* at Abstract, col. 1 ll. 5-10, fig.1. The line drive circuit 10 receives audio signals over lines 128 and 130 and couples them to a subscriber line 14 by way of lines 36. *Id.* at col. 10 ll. 4-9, figs.1 & 3. The line drive circuit includes two amplifiers 132 and 134. As noted in the rejection of claim 1 *supra*, amplifiers 132 and 134 couple currents received over the same lines to the subscriber line as audio and battery feed just as the instantly claimed first circuit. While the construction of these amplifiers is not disclosed by *Rosch*, the rejection of claim 1 *supra* showed that embodying these amplifiers using the *Robe* amplifier would have been obvious, and the *Robe* amplifier comprises a plurality of common-base transistors Q3 and Q4. BJT transistors, such as those taught by Robe, are unidirectional devices as indicated by their circuit symbols. *Id.* at fig.1. Thus, transistors Q3 and Q4 will prevent any current backflow from the subscriber line 36, so they will inherently isolate the audio signal source line 22 from the subscriber line. Since the audio signals received over lines 128 and 130 are coupled through the *Robe* amplifiers, the received signals are coupled through the common base isolation stage of the *Robe* amplifiers just like the instantly claimed received audio signals are coupled through a common base stage. Therefore, *Rosch* in view of *Robe* makes obvious all limitations of the claim.

Claim 10 is limited to the apparatus of claim 9. The transistors Q3 and Q4, as taught by *Robe*, are bipolar junction transistors. *Robe* at col. 3 l. 2, col. 4 l. 12. Therefore, *Rosch* in view of *Robe* makes obvious all limitations of the claim.

Claim 12 is limited to the apparatus of claim 9. *Rosch* discloses two circuits, one (142, 144) for controlling the tip line and one (148, 150) for controlling the ring line of a subscriber loop, where each circuit is controlled by two signals (154/156, 162/164), such that the tip/ring node voltage increases in response to one signal and decreases in response to the other signal (figure 3; column 11, lines 24-48). Therefore, *Rosch* in view of *Robe* makes obvious all limitations of the claim.

Claim 15 is limited to a subscriber line interface circuit apparatus. *Rosch* discloses a transmission interface 16 that corresponds, in part, to the signal processor as recited. *Id.* at fig.1. *Rosch* discloses a telephone line interface circuit that comprises a line drive circuit 10 that corresponds to the linefeed driver as recited. *Rosch* at Abstract, col. 1 ll. 5-10, fig.1. The line drive circuit 10 receives audio signals over lines 128 and 130 and couples them to a subscriber line 14 by way of lines 36. *Id.* at col. 10 ll. 4-9, figs.1 & 3. The line drive circuit includes two amplifiers 132 and 134. As noted in the rejection of claim 1 *supra*, amplifiers 132 and 134 couple currents received over the same lines to the subscriber line as audio and battery feed just as the instantly claimed first circuit. While the construction of these amplifiers is not disclosed by *Rosch*, the rejection of claim 1 *supra* showed that embodying these amplifiers using the *Robe* amplifier would have been obvious, and the *Robe* amplifier comprises a plurality of common-base transistors Q3 and Q4. BJT transistors, such as those taught by Robe, are unidirectional devices as indicated by their circuit symbols. *Id.* at fig.1. Thus, transistors Q3 and Q4 will prevent any current backflow from the subscriber line 36, so they will inherently isolate the audio signal source line 22 from the subscriber line. Since the audio signals received over lines 128 and 130 are coupled through the *Robe* amplifiers, the received signals are coupled through

the common base isolation stage of the *Robe* amplifiers just like the instantly claimed received audio signals are coupled through a common base stage. Therefore, *Rosch* in view of *Robe* makes obvious all limitations of the claim.

Claim 16 is limited to the apparatus of claim 15. The transistors Q3 and Q4, as taught by *Robe*, are bipolar junction transistors. *Robe* at col. 3 l. 2, col. 4 l. 12. Therefore, *Rosch* in view of *Robe* makes obvious all limitations of the claim.

Claim 18 is limited to the apparatus of claim 15. *Rosch* discloses two sets of current sources, 142 and 144 for controlling the tip line and 148 and 150 for controlling the ring line of a subscriber loop 36, where each circuit is controlled by two signals (154/156, 162/164), such that the tip/ring node voltage increases in response to one signal and decreases in response to the other signal. *Rosch* at col. 11 ll. 24-48, fig.3. Digital control circuit 152, which makes up the other part of the signal processor as recited, provides the tip and ring control signals. Therefore, *Rosch* in view of *Robe* makes obvious all limitations of the claim.

2. Claims 1, 5, 9 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Rosch* in view of Pryor et al. (US Patent 4,284,958) (herein *Pryor*).

Claim 1 is limited to a method that (1) receives an outgoing audio signal, (2) couples the audio signal to a subscriber line through a plurality of transistors coupled in a common base configuration and (3) receives linefeed driver control signals for controlling battery feed to the subscriber line, wherein (4) the audio signal and linefeed driver control signals are received as currents on the same signal lines. *Rosch* discloses a wideband telephone line interface circuit, or subscriber line interface circuit (SLIC). *Rosch* at Abstract, col. 1 ll. 5-10. The SLIC receives an

outgoing signal Rx from the central office (CO) via receive line 22. *Id.* at col. 5 ll. 15-21, col. 9 ll. 63-64, figs.1 & 3. Signal Rx can be a general voiceband signal. *Id.* at col. 5 ll. 51-60. The signal Rx is coupled to the subscriber line 36, or 14, via amplifier circuits 104, 106, 132 and 134. *Id.* at fig.3. Since the SLIC receives from the CO and transmits to the subscriber line signal Rx as a voiceband signal, signal Rx is a received outgoing audio signal as claimed.

Since signal Rx is coupled to subscriber line 36 through operational amplifiers, the *Rosch* SLIC likely includes a plurality of transistors, but *Rosch* is silent as to the construction of the amplifier circuits. *Id.* at col. 10 ll. 18-19, fig.3. Since *Rosch* is silent regarding the amplifier's construction, *Rosch* fails to disclose a plurality of transistors coupled in a common base configuration. This deficiency will be treated *infra.*

Rosch discloses four controlled current sources 142, 144, 148 and 150. *Id.* at fig.3. Three monitored signals—IL, ICM, VCM—provide feedback controls to digital control circuit 152 that adjusts the current sources. *Id.* at col. 10 ll. 54-68, col. 11 ll. 1-16. Based on the adjustment, the current sources determine the battery feed voltage at the output of buffer amplifiers 132 and 134. *Id.* at col. 10, ll. 49-53, col. 11 ll. 24-58. Since current sources 142, 144, 148 and 150 create currents at the input of amplifiers 132 and 134 to determine the battery feed voltage output to the subscriber line 36, the SLIC of *Rosch* receives a linefeed driver control signal for controlling battery feed to the subscriber line as claimed. Since signal Rx and the outputs of current sources 142, 144, 148 and 150 are coupled to the subscriber line 36 through amplifiers 132 and 134, both the current source outputs and signal Rx are received on the same signal lines as claimed, to wit, the signal lines feeding the non-inverting inputs of amplifiers 132 and 134. Though the input of interest at the non-inverting input of amplifier 132 is voltage, any

amplifier can be modeled as any of the four types of amplifiers: voltage, current, transconductance and transresistance. *Sedra* at 23-24. If one models voltage amplifier 132 as a current amplifier, the input voltage at the non-inverting input of amplifier 132 will be mathematically converted into an input current using the relationship $i_i = v_i / R_i$, where i_i is the input current, v_i is the input voltage and R_i is the input resistance. *Id.* Accordingly, the presence of a voltage at the non-inverting inputs of amplifiers 132 and 134 is evidence of an input current. Since voltages evince currents and since the input voltage at the non-inverting inputs of amplifiers 132 and 134 are determined by the outputs of current generators and signal Rx, the current generator outputs and signal Rx are received at the inputs of amplifiers 132 and 134 as currents as claimed.

Returning to the deficiencies identified *supra* apropos the second method step of this claim, since *Rosch* is silent regarding the structure of amplifiers 132 and 134, one of ordinary skill in the art would have been inherently motivated to find a teaching of how to construct the operational amplifiers, or to simply use a known operational amplifier. One exemplary operational amplifier is taught by *Pryor*. *Pryor* teaches a folded-cascade amplifier with a differential construction that corresponds to the amplifiers 132 and 134 of Rosch. Specifically, two inputs, 2 and 4, are provided as well as a single-ended output, 54. The output of the amplifier is provided in part by a common-base stage comprising transistors N6, P6, N7 and P7. *Pryor* at fig. 2. One of ordinary skill in the art would have found the combination of *Rosch* and *Pryor* obvious at the time of the invention since *Rosch* requires one of ordinary skill in the art to either choose a voltage amplifier known in the prior art or design a new amplifier and *Pryor*

teaches a voltage amplifier. Therefore, *Rosch* in view of *Pryor* makes obvious all limitations of the claim.

Claim 5 is limited to a method comprising essentially the same steps as claim 1, as covered by *Rosch* in view of *Pryor*, and is rejected for the same reasons. Specifically, receiving linefeed driver control signals and outgoing audio signals as currents on a same plurality of signal lines is substantially identical language as steps a) and c) from claim 1. The instant limitation of a plurality of signal lines was not discussed in claim 1 *supra*, however, *Rosch* discloses two amplifiers 132 and 134 with two separate input lines that receive separate battery feed control signals and separate Rx signals. *Rosch* at fig.3. Providing the outgoing audio signals to a subscriber line through a common base isolation stage is slightly broader in scope than b) of claim 1 since the instant providing step does not require a plurality of transistors, otherwise the limitations are identical. Therefore, *Rosch* in view of *Pryor* makes obvious all limitations of the claim.

Claim 9 is limited to a subscriber line interface circuit apparatus. *Rosch* discloses a telephone line interface circuit that comprises a line drive circuit 10 that corresponds to the first circuit as claimed. *Rosch* at Abstract, col. 1 ll. 5-10, fig.1. The line drive circuit 10 receives audio signals over lines 128 and 130 and couples them to a subscriber line 14 by way of lines 36. *Id.* at col. 10 ll. 4-9, figs.1 & 3. The line drive circuit includes two amplifiers 132 and 134. As noted in the rejection of claim 1 *supra*, amplifiers 132 and 134 couple currents received over the same lines to the subscriber line as audio and battery feed just as the instantly claimed first circuit. While the construction of these amplifiers is not disclosed by *Rosch*, the rejection of claim 1 *supra* showed that embodying these amplifiers using the *Pryor* amplifier would have

been obvious, and the *Pryor* amplifier comprises a plurality of common-base transistors N6, P6, N7 and P7. The transistors allow for uniform current flow. *Pryor* at fig.2. Thus, transistors N6, P6, N7 and P7 will prevent any current backflow from the subscriber line 36 when the transistors are used in *Rosch*, so they will inherently isolate the audio signal source line 22 from the subscriber line. Since the audio signals received over lines 128 and 130 are coupled through the *Pryor* amplifiers, the received signals are coupled through the common base isolation stage of the *Pryor* amplifiers just like the instantly claimed received audio signals are coupled through a common base stage. Therefore, *Rosch* in view of *Pryor* makes obvious all limitations of the claim.

Claim 15 is limited to a subscriber line interface circuit apparatus. *Rosch* discloses a transmission interface 16 that corresponds, in part, to the signal processor as recited. *Id.* at fig.1. *Rosch* discloses a telephone line interface circuit that comprises a line drive circuit 10 that corresponds to the linefeed driver as recited. *Rosch* at Abstract, col. 1 ll. 5-10, fig.1. The line drive circuit 10 receives audio signals over lines 128 and 130 and couples them to a subscriber line 14 by way of lines 36. *Id.* at col. 10 ll. 4-9, figs.1 & 3. The line drive circuit includes two amplifiers 132 and 134. As noted in the rejection of claim 1 *supra*, amplifiers 132 and 134 couple currents received over the same lines to the subscriber line as audio and battery feed just as the instantly claimed first circuit. While the construction of these amplifiers is not disclosed by *Rosch*, the rejection of claim 1 *supra* showed that embodying these amplifiers using the *Pryor* amplifier would have been obvious, and the *Pryor* amplifier comprises a plurality of common-base transistors N6, P6, N7 and P7. The transistors allow for uniform current flow. *Pryor* at fig.2. Thus, transistors N6, P6, N7 and P7 will prevent any current backflow from the subscriber

line 36 when the transistors are used in *Rosch*, so they will inherently isolate the audio signal source line 22 from the subscriber line. Since the audio signals received over lines 128 and 130 are coupled through the *Pryor* amplifiers, the received signals are coupled through the common base isolation stage of the *Pryor* amplifiers just like the instantly claimed received audio signals are coupled through a common base stage. Therefore, *Rosch* in view of *Pryor* makes obvious all limitations of the claim.

(10) Response to Argument

Applicant alleges that the examiner has failed to state a prima facie case of obviousness. Appeal Brief at 6 (28 September 2007). The appellant makes its case on two separate theories: (1) the references do not teach all the claim limitations and (2) no suggestion exists to combine the references. Each of appellant's theories will be treated in turn. The following discussion will address all of appellant's arguments, but repeated arguments are only addressed the first time they appear. Some of appellant's arguments are treated out-of-order; this treatment is on purpose so that issues under the same theoretical heading are analyzed in proximity instead of the random fashion set forth by appellant.

1. The references do not teach all the claim limitations

The appellant argues that *Rosch* does not disclose receiving currents at the inputs to amplifiers 132 and 134 since the examiner's stated mathematical relationship between voltage amplifiers and current amplifiers is illusory. *Id.* In support of its position, the appellant alleges that ideal voltage amplifiers produce voltage independent of the load, but current dependent on

the load; current amplifiers produce current independent of the load, but voltage dependent on the load. Notwithstanding appellant's unsupported allegation, each amplifier type can be modeled as any of the four amplifier types. *Sedra* at 23. The voltage at the input of a voltage amplifier can axiomatically be determined as an input current because an input voltage and an input resistance implies an input current according to Ohm's law (i.e. V = I * R). Moreover, currents are applied to the input of amplifiers 132 and 134 by current sources 142, 144, 148 and 150.

The appellant argues that *Rosch* teaches away from the use of a common base stage. Allegations of teaching away are treated *infra* along with the other arguments for no suggestion to combine the references. Appeal Brief at 7. The appellant also argues that the *Pryor* and *Robe* references are voltage amplifiers and presumably fail to disclose the step of receiving currents as alleged by appellant apropos *Rosch*. *Id.* Since one can always define an amplifier's input voltage as an input current, appellant's argument is baseless.

Despite appellant's apparent admission that *Pryor* and *Robe* disclose common base amplifier stages, Appeal Brief at 7, appellant alleges that *Rosch* actually teaches an emitter follower. *Id.* at 9. Appellant cites to *Robe* col. 3 ll. 22-28 to support the proposition that transistor Q3 is coupled as an emitter-follower amplifier. The cited portion of *Robe* accurately describes Q3 as an emitter-follower amplifier; implicit in appellant's argument is that Q3 is only an emitter-follower, but Q3 performs more than one function. As an emitter-follower, the voltage input at Q3 results in an inherent forward voltage drop V_{BE}. *Robe* at col. 3 ll. 28-37. The voltage drop regulates the voltage across the collector and emitter of Q1. *Id.* Q1 also has an inherent forward voltage drop V_{BE} between the Q1 base and Q1 emitter. Since the voltage drops

of Q1 and Q3 are substantially equivalent, the Q1 V_B also appears at the Q3 V_E. *Id* ($V_{BE,Q1,Q3}$ = X; $V_{CE,Q1}$ = X; $V_{CE,Q1} - V_{BE,Q1} = X - X = 0$; and $V_{C,Q1} - V_{B,Q1} = V_{CB,Q1}$). In effect, the connection of Q1 and Q3 results in the signal at IN_bar to be reflected in the emitter of Q3. IN_bar is unequivocally the input signal for the amplifier. *Id.* at col. 2 ll. 32-35. The output of Q3 is the Q3 collector since all further amplifying activities progressing towards the OUT node are referenced to the Q3 collector. *Id.* at fig.1 (Q3 collector drives Q5 and Q6; Q5 and Q6 drive Q7; Q7 drives PAS; PAS drives OUT). Since the emitter of Q3 is the input for IN_bar and the Q3 collector is the output, the Q3 base must be the common node by process-of-elimination. In fact, *Robe* explicitly regards Q3 as a common-base amplifier. *Robe* at col. 4 ll. 22-27. So Q3 performs two functions: as a common-emitter, Q3 regulates V_{CE} across Q1; as a common-base, Q3 routes IN_bar into the current mirror comprising Q5 and Q6. Because, *Robe* performs as both a common-emitter and common-base amplifier, appellant is partially correct that Q3 is a common-emitter amplifier; however, since Q3 also acts as a common-base amplifier, appellant's argument cannot stand on the ground that Q3 is only a common-emitter amplifier.

2. No suggestion exists to combine the references

Appellant argues that *Rosch* does not suggest the use of common base amplifier stages in amplifiers 132 and 134 and that neither *Robe* nor *Pryor* teaches using their operational amplifiers as operational amplifiers in the *Rosch* circuit. Appeal Brief at 7, 10. While *Rosch* does not expressly teach or suggest using common base amplifier stages, *Rosch* does require the use of operational amplifiers. *Robe* and *Pryor* teach operational amplifiers with common base amplifier stages. Appellant's invention is claimed very broadly and merely requires the use of

common base transistors. The clever and potentially novel configuration of common base transistors, however, is not claimed until later dependent claims. Since appellant seeks the world of common base configurations, appellant must accept that the use of common base amplifiers within operational amplifiers is an old practice, and using operational amplifiers in a SLIC is likewise an old practice. At most, appellant can argue that combining *Rosch* with either *Robe* or *Pryor* is a fluke and unlikely considering the vast array of SLICs and operational amplifiers. This logic, if followed, would produce a bad result in law since the argument extends to practically all combinations of more than one reference, thus, vitiating the ability to combine references. Accordingly, the combination of *Rosch* and either *Robe* or *Pryor* is obvious since the combination is the result of using known prior elements together in ways known to produce a desired effect.

Appellant argues that *Rosch* teaches away from using common base transistor amplifier stages since common base stages produce less than unity gain and *Rosch* requires unity gain or greater. Appeal Brief at 7. Appellant's naked allegation of a common base transistor's ability to amplify voltage is made without any supporting evidence and the validity of this allegation is denied by the examiner. Notwithstanding, appellant's argument assumes that because common base transistor stages produce less than unity gain that all amplifiers with common base stages also produce less than unity gain. Appellant's assumption is also unsupported by evidence and is contradicted by the *Robe* voltage *amplifier* with a common base amplifier Q3. *Robe* at col. 2 ll. 32-39. Since appellant's arguments for teaching away are unsupported by any evidence and are contradicted by the express disclosure of *Robe*, appellant has failed to show that the prima facie rejections are not valid.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Walter F. Briney III

Conferees:

SINH TRAN
SUPERVISORY PATENT EXAMINER

VIVIAN CHIN
SUPERVISORY PATENT EXAMINER